



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,837	01/07/2004	Stephen B. Siegel	019587.01US3	6782
25541 7590 11/23/2007 NEAL, GERBER, & EISENBERG SUITE 2200 2 NORTH LASALLE STREET CHICAGO, IL 60602			EXAMINER SELLMAN, CACHET I	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 11/23/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/753,837

Applicant(s)

SIEGEL, STEPHEN B.

Examiner

Cachet I. Sellman

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Acknowledgement is made of the amendment filed by the applicant on 5/27/2007, in which claims 1-3, and 5-7 were amended and claims 21-25 were added. Claims 1-3 and 5-25 are currently pending in U.S. Application Serial No. 10/753,837.

Drawings

The objection to the drawings as set forth in paragraph 5 of the office action dated 5/18/2006 is withdrawn due to the applicant's amendment to the specification to add the reference character.

Specification

The objection to the specification as set forth in paragraph 6 of the previous office action dated 5/18/2006 is withdrawn due to the applicant's amendment corrected the error.

Claim Objections

The claim objection of claim 6 in the previous office action 5/18/2006 is withdrawn due to the applicant's amendment to the claim correcting the error.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (2004/0011457) in view of Ignatius (US 5278432).

Kobayashi et al. discloses a method for curing an UV curable adhesive on a disk (abstract, 0002) which includes the steps of causing relative rotational movement between an array of UV-LED chips mounted on panel and a disk containing the UV curable adhesive (abstract, 0023 and 0039). Kobayashi et al. does not disclose that the LEDS are arranged in staggered rows where one row of chips is adjacent to spaces between chips in an adjacent row as required by **claim 1**.

However, Kobayashi et al. teaches that the diodes may be arranged randomly in close proximity to teach other, hexagonally, concentrically or spirally so that the interval between adjacent diodes is a fixed distance [099]. Further more it was known in the art at the time the invention was made to stagger the LED's on a support when used for curing as taught by Ignatius et al. (abstract; figures 1-2 and 4; col. 1, lines 6-10 and 65- col. 2, lines 15, 30-49 and 56- col. 3, line 5 & 65-75; col. 4, lines 13-15 & 48-58; col. 5, lines 4-12) which teach configurations for LED arrays arranged in tightly packed structures, where multiple sets of arrays may be configured together, where the number

depends on needs of the specific enduse and the illustrations clearly depict staggering of the LEDs from one row to the next. Ignatius et al. teaches that the tight packing is desirable for its effects on the intensity output, and also notes the prayer for bill of the abusing a thermally conductive substrate for the LED arrays so that it may act as a heat sink. Ignatius teaches LED arrays for various applications and that the spectral omissions are selected according to the desired application, hence it would have been obvious to one having ordinary skill in the art to employ LED arrays configured for their beneficial effects on intensity output, and because Kobayashi et al. teaches the use of LED arrays that are in close proximity as light sources.

The disk is rotated relative to the fixed panel mounting an array of UV LED chips [0023, 0062 and Fig. 1] as required by **claim 2**. The panel is rotated relative to the disk having the UV curable adhesive [0058] as required by **claim 3**.

Kobayashi et al. discloses positioning a second glass, plastic sheet or plate between the array and disk with the UV curable adhesive thereon [104 and Fig. 1] as required by **claim 5**. The array of UV-LED chips are arranged at the periphery of the disk for emitting UV light at the disk form a side of the disk [0084 and Fig. 1] as required by **claim 6**. As stated above, Kobayashi et al. uses a second glass, plastic sheet or plate between the UV-LED chips and the disk as required by **claim 7**.

4. Claims 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (2004/0011457) in view of Ignatius (US 5278432) as applied to claim 1 above in further view of Young (US 6561640).

The teachings of Kobayashi et al. in view of Ignatius as applied to claim 1 are as stated above. Kobayashi et al. in view of Ignatius does not teach that at least one row of the UV LED chips emit light in the visible region where a user can determine the power to be supplied to the rows or that there are at least two different wavelengths as required by claim 21.

However, Kobayashi et al. teaches the use of LEDs which emit light in the range of 280-450nm.

Futhermore, Young teaches an uv curing process for curing uv curable substance by moving a substrate relative to a spaced apart curing stations which may employ uv light emitting devices that may be arrays of diodes, with different wavelengths suggested for selective cure of different substances deposited. Young also teaches that the use of LEDs capable of separate emission of different wavelengths, and of arrays and further teach the importance of properly selecting operating parameters to control the effectiveness of the curing, by manipulating power, intensity, direction, etc (col. 7, lines 15-22), hence it would have been obvious to one having ordinary skill in the art at the time to arrange their multiple wavelengths to effectively distribute the light from the individual diodes in the array, in order to achieve the taught curing. As arrays are typically composed of rows, and as even distributions is commonly achieved by alternating the objects that emit what is being distributed at a sufficient distance, i.e. the different wavelength emitting diodes, alternations by row or by place in a row or a combination thereof, would have been obvious and standard means of achieving the teachings by evenly physically dispersing the sources of wavelengths.

The wavelength range taught by Kobayashi et al. overlaps that of the claimed range and would have been obvious to use through routine experimentation depending on the curable material being cured by the LEDs in order to properly and sufficiently cure the material.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Response to Arguments

6. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cachet I. Sellman whose telephone number is 571-272-

Application/Control Number:
10/753,837
Art Unit: 1792

Page 7

0691. The examiner can normally be reached on Monday through Friday, 7:00 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cachet I Sellman
Examiner
Art Unit 1792

cis

William Phillip Fletcher III
Primary Examiner